

A Study of the Distribution Patterns of the
Michigan Curriculum Framework
and Best Practices CD-ROM

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Executive Summary

Background

In 1996 Congress enacted the Technology Literacy Challenge Fund, which challenged the federal government, states, educators, and local communities to share the responsibility of strengthening technological literacy in America's schools in the 21st Century. The intent of this program was two-fold: 1) to channel funds to local education agencies through state governments and 2) to provide a framework that states and local communities could use to develop their own action plans. To assist states in writing their individualized framework, the Technology Plan was divided into four pillars: training, hardware, access and connectivity, and content resources.

In 1997, the State of Michigan enacted a state Technology Literacy Challenge Grant by providing federal directed funds and a framework for districts that supported the outlined federal and state technology plan. The goal of Michigan's plan was to "strengthen and enhance the statewide elementary and secondary curriculum through the integration of instructional technologies." Tied to this goal were three of the four federally suggested pillars: content resources, training, and technology integration (e.g., hardware, access and connectivity), which were supported through a variety of instructional technological efforts geared toward "strengthening and enhancing statewide curriculum." These three pillars were supported in the production of an instructional CD-ROM containing the Michigan Curriculum Framework and a collection of Best Practices in Technology Lesson Plans (MCF/BP CD-ROM).

During the 1998-1999 school year, state Regional Educational Media Center (REMC) Associations in collaboration with Intermediate School Districts (ISD) and

Regional Service Agencies (RSA) distributed five copies of the MCF/BP CD-ROM to each public and private school building in the State of Michigan. Utilizing a hierarchical training model, REMCs coordinated and facilitated training sessions and distributed CDs to constituent ISDs. ISDs were responsible for training and distribution within their local service area. The Great Lakes Education Network (GLEN) devised the statewide training schedule.

Purpose and Methods of the Study

The present study was undertaken to trace the dissemination patterns of the MCF/BP CD-ROM. The project was guided by a qualitative design, which included the use of questionnaires and recorded phone interviews relating to the interviewee's knowledge of distribution and location of the CD. Participants, who were targeted based upon their involvement in the distribution of the MCF/BP CD-ROM, included 20 REMC directors and a random sample of seven CD distributors and nine teachers. Analysis of data followed a four-phase process which included: highlighting data from interview transcripts for further analysis, coding raw data for reassembly into shared meaning, confirming and disconfirming patterns of themes, and validating findings and conclusions.

Findings

By way of conclusion, we present our interpretation of the findings and discuss their implications. Before we present our conclusions, we must caution our readers that the sample of our third population, i.e. the end users or the teachers, is very small. It should by no means be considered a representative sample of all teachers in Michigan. However, these teachers revealed a consistent pattern that can be viewed as typical and

thought-provoking. The qualitative nature of the data gives us in-depth look into the dissemination of technology-based innovations. Based on the data, we reach the following conclusions:

1. There is a great need for the product in schools. Over 1500 hard copies have been purchased by schools.
2. Overall, the original dissemination plan seemed reasonable in that it takes advantage of the existing dissemination network in the education system. It also considers training as key to successful dissemination, which is consistent to the literature on professional development and innovation diffusion.
3. The dissemination plan seemed to have worked well at the first level: from developer to level-one distributors. As the findings suggest, all the level-one distributors (i.e., REMC directors) had access to the CD and were prepared to provide training and the CD to the second level distributors, that is, district level or building level distributors. The plan worked less successfully with the second-level distributors with 70% held training sessions for distribution. However, the plan worked even less successfully at the last stage: from trainers/distributors to the end users. As noted, virtually none of the teachers received any training, and half of the teachers did not know where to obtain the CD.
4. Actual uses of the MCM/BP-CD were very limited. The most frequent usage included only two out of nine teachers using it no more than three times.

There are many possible reasons to account for the fact that a well-designed product and a well-developed dissemination failed to be used by its recipients. In this case,

we believe the following are the primary reasons contributing to the failure of successful dissemination of the MCF/BP-CDs:

1. Lack of awareness of the significance and value of the CD. The end users, and some of the distributors, were not fully aware of the value of the CD, because they were not properly trained. In some cases, the training was conceived as only technical, which led to the discontinuation or downplaying of training, because some distributors thought the navigation was very straightforward and simple.
2. Lack of awareness of the CD's existence or where to obtain one. Some teachers did not even know such a thing existed, or among the ones who had heard about the CDs, many did not know how to obtain one. As mentioned previously, many schools purchased hardcopies, or perhaps downloaded copies from the Web, instead of using the CDs, which were free and arguably easier to use.
3. Incompatibility with local plans/practices. Some believed that the content of the CD (the best practices part) was not as good as what they already had.
4. Inefficient dissemination infrastructure. The dissemination followed a conventional process of information flow in the education system, which however, did not seem to be effective. Apparently, school administrators, technology directors, specialists, and teachers seem to have different ways to access information about innovations, and they definitely do not operate in a hierarchical fashion. In other words, a direct chain of command from MDE or REMC to teachers does not exist.

Recommendations

In light of these findings and the literature on innovation diffusions, we make the following recommendations:

1. The training should be much more about the content and how it could be used by teachers and schools, instead of focusing on the technical aspects of the product.
2. Dissemination should directly involve the target audiences, in this case, teachers.
3. The product can also be disseminated through professional development opportunities offered by the State, ISD, or school districts. University programs aimed at providing professional development to teachers are a less commonly used channel of dissemination. It would be beneficial to provide information or the product to university instructors of courses that focus directly on the professional development of teachers.

A Study of the Distribution Patterns of the Michigan Curriculum Framework
and Best Practices CD-ROM

Background

During the past decade, captains of industry and political pundits have sounded alarms of concern regarding the technical illiteracy of adults in the workplace. To begin to ameliorate this concern, in 1996 Congress enacted the Technology Literacy Challenge Grant Program. The program challenged the federal government, states, educators, and local communities to cooperatively share the responsibility of strengthening technological literacy in America's schools. The intent of this program was two-fold: 1) to channel funds to Local Education Agencies (LEAs) through state governments and 2) to provide a framework that states and local communities could use to develop their own action plans. These action plans were to be individualized and based on the state's own educational/technological priorities and individual needs of school districts.

The overarching goal of this program was to ensure that all students become technically literate in the 21st Century (U.S. Department of Education, 1996). To provide state flexibility in meeting this goal, the Technology Plan was divided into four areas (pillars):

- Training – All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway.
- Hardware – All teachers and students will have modern multimedia computers in classrooms.
- Access and Connectivity – Every class will be connected to the information superhighway.
- Content Resources – Effective software and on-line learning resources will be an integral party of every school's curriculum (p.1).

By providing these pillars, the federal Technology Literacy Challenge Grant gave states a starting point from which to build their own individual framework and “take the challenge.”

In 1997, Michigan enacted the state Technology Literacy Challenge Grant, by providing funds and a framework for districts that supported the outlined federal and state technology plan. The goal of Michigan’s plan was to “strengthen and enhance the statewide elementary and secondary school curriculum through the integration of instructional technologies” (Michigan Department of Education, 1997). Tied to this state project were three supporting areas (pillars). The content resource pillar came directly from the federal technology plan, while the state adapted the federal recommendations regarding training and technology integration.

The Michigan Department of Education (1996) defines training and technology integration as:

- Training – Increase capacity of teachers and students to effectively use technology in teaching and learning through training and resource development.
- Technology integration – Facilitate the integration of technology into curriculum by providing and modeling teacher- and student-friendly technology resources and instructional materials.

The State of Michigan supports these three components through a variety of instructional technological efforts geared toward “strengthening and enhancing statewide school curriculum.” At the start of this statewide push was the production and dissemination of an instructional CD-ROM. The first in series of four CDs, this innovation contained the Michigan Curriculum Framework and a collection of Best

Practices in Technology Lesson Plans (MCF/BP CD-ROM). This paper focuses on the dissemination of the MCF/BP CD-ROM.

Michigan Curriculum Framework

Arthur E. Ellis, former Michigan's Superintendent of Public Instruction, suggests that Michigan's public schools have "a responsibility to set high standards for students." For this to transpire, teachers in public and private K-12 educational institutions must have a specific plan, in the form of resources and guidelines, with which to meet these responsibilities. In the State of Michigan, this resource comes in the form of *The Michigan Curriculum Framework* (MCF).

Implemented by the Michigan Department of Education (MDE) and the Michigan State Board of Education, the MCF is a resource for helping schools design, execute and assess core content standards. These core areas of instruction embody meticulous expectations for student performance, as well as describe abilities and knowledge required to be successful in today's revolutionizing society. Moreover, implementation of such principles ensures that all students reap the benefits of a quality education and achieve the adult roles described in Michigan's vision for K-12 education.

Contents

Encompassing all grade levels, the MCF contains specific standards and benchmarks for the subject areas of English Language Arts, Social Studies, Mathematics, and Science. A standard describes what students should know and be able to do in each subject area; a benchmark is a specific indicator of development. Standards for each area are divided into several strands or units. For instance, strands for the subject area of English Language Arts might include: Meaning and Communication,

Literature, Voice, Skills and Process, and Critical Standards. Additionally, standards for authentic teaching and learning, assessment, and professional development are also specified. Division of these curricular and developmental areas aids in conceptualizing the framework as a bridge between national standards and local classroom practice.

The MCF is composed of three tiers. Tier 1 contains content standards, benchmarks and a glossary of framework terms. Tier 2 contains toolkits designed to assist districts with discrepancy analyses, technology, curriculum integration and alignment. Tier 3 contains specific content-area resources that clarify the curriculum development process, as well as a guidebook written for parents and the business community explaining elements of the framework.

Developers

According to Humphrey, Shields, & Anderson (1996), typically State Departments of Education led the planning of curriculum framework projects, while also consulting with key stakeholders, educational professionals, and the public in discussions about student knowledge and comprehension. Such was the case with the development of the MCF. Project co-directors, university representatives, and consultants from the MDE, together with content area professional organizations collaborated to develop components of the framework. During the collaboration process, however, it is important to remember that teachers are the key audience of the framework. For this reason, teachers and university personnel worked in partnership to develop content standards and benchmarks, along with performance standards for specific content areas for the MCF.

Formats

The MCF is made available in three different forms: Booklet, Web-based, and CD-ROM. Although the forms differ, each contains the same content. Therefore, depending on the needs and technological proficiency of the user, form choice is an individualized decision. At its inception, the curriculum framework was available in booklet form only. Generally, the booklet is procured by individual teachers or purchased in bulk by school administrators or Intermediate School Districts (ISDs) to distribute to individual schools. For instance, according to Dr. Gloria Kielbaso, Director of the Michigan Center for Career and Technical Education at Michigan State University, from March 1998 to December 2000, her Center sold over 1,500 booklet copies.

With the dawn of the information age and subsequent rise of the Internet, the MCF is now Web-based through the Michigan Department of Education's Website (<http://www.mde.state.mi.us>). Further exploration of various Internet search engines harvest a wide range of educational sites, which examine specific components of the MCF, such as best practices and curriculum development.

The most recent form of the MCF to be distributed is the CD-ROM version. Disseminated in 1998, the CD also includes the first collection of Best Practices in Technology. Developed out of a need to infuse more technology into Michigan schools, the CD was spearheaded by the Michigan Department of Education (MDE), the Michigan Association of Intermediate School Districts (MAISD) and the Regional Educational Media Center Association of Michigan (REMC). A specific distribution and training model was proposed.

State Training and Distribution Plan for the MCF/BP CD-ROM

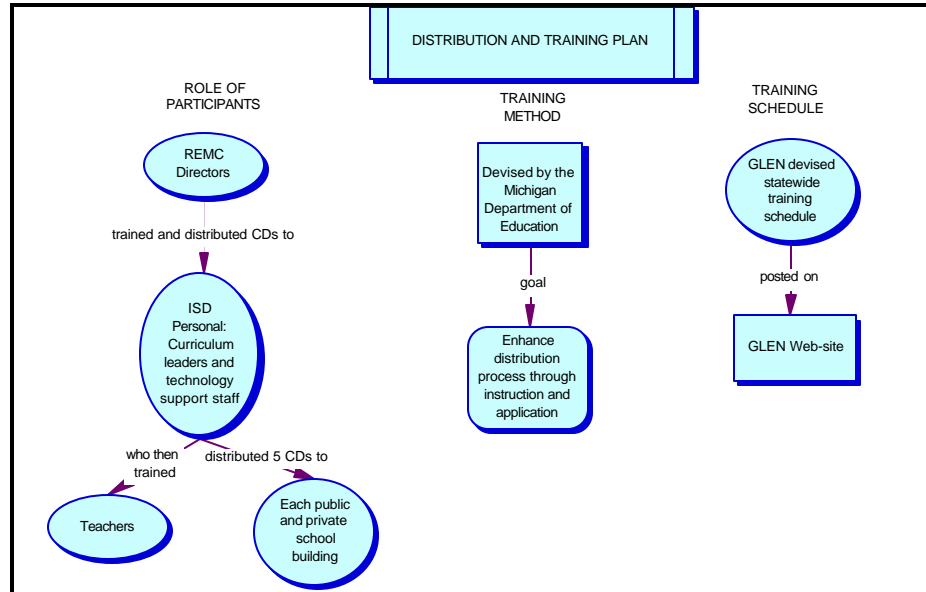
During the 1998-1999 school year, state REMC Associations worked collaboratively with participating Intermediate School Districts (ISDs) and Regional Service Agencies (RSAs) to distribute five copies of the MCF/BP CD-ROM to every public and private school building in the State of Michigan. REMCs coordinated and facilitated the training sessions and distribution for their constituent ISDs. The ISDs were then responsible for training and distributing the CDs within their local service area. The intent of training was to enhance the distribution process by providing instruction in the use and application of the CD. Training was intended for curriculum leaders, technology support staff (ISD) and local district educators (schools).

The Great Lakes Education Network (GLEN) devised the statewide training schedule, which was published on their website (www.glenn.cc/fw/remc.html). The training schedule included the following:

1. Links to each of the 22 REMC Associations (training divided by each association).
2. Date of initial site training for REMC and ISD staff, as well as status requests for additional copies of the CD.
3. Date, time, location and REMC/ISD training contact person for local district participants.

Upon completion of training for REMC and ISD staff, the word “COMPLETED” along with date of completion were noted. Additionally, CD counts and requests for additional CDs were documented. In cases where training had not yet occurred or had not been scheduled, “TBA” was noted in the column.

Figure 1 outlines the state distribution and training information.



Purpose of the Study

The purpose of the study was to trace the dissemination of the Michigan Curriculum Framework and Best Practices CD. More specifically, this study examined how closely CD distribution aligned with proposed distributions outlined by the Michigan Department of Education. The findings and conclusions from this report may have implications for others seeking to distribute technology related resources. The following questions guided this study:

1. To what audience was the CD-ROM targeted?
2. Did the CD reach the target audience?
3. If the CD did not reach the target audience, why was that goal not met?
4. Did participants place value in the innovation?
5. What factors affected distribution of stated factored innovations?

Methods

Population

The sample of the study consisted of three groups: REMC directors, distributors and teachers. All were employed by school systems throughout the State of Michigan either as an administrator or an educator. Participants were targeted based upon their involvement in the distribution of the MCF-CD. Ninety percent of the REMC directors in the State of Michigan participated in the study (n=20). Distributors, who were selected by REMC directors to coordinate training, were employed in administrative positions at ISDs or individual schools. Of this group, 90% of contacted individuals participated in the study. Distributors were randomly selected from data obtained from REMC directors. Teachers, (n=9) whose random selection was based on data obtained through distributors, had taught an average of six years. Other demographic data on teachers included grade level breakdown: 40% elementary, 30% middle school, and 30% high school, and subjects taught: math, language arts, and computer technology.

Data Collection

Based on the distribution hierarchy, individual questionnaires were constructed for directors and distributors that contained questions pertaining to knowledge of MCF-CD distribution. A second questionnaire, assembled for teachers, focused on their knowledge of the MCF/BP-CD location (for a complete list of questions, refer to Appendix A). In order to understand the diffusion patterns on the CD, phone interviews were conducted with REMC directors. Once various patterns were identified, phone interviews were conducted with a random sample of distributors and teachers. All phone

interviews were recorded and transcribed, serving as primary data. On average, each interview took a total of 30 minutes.

Analysis of Data

Discourse analysis (Tannen, 1989) was used to interpret meaning of participants as they talked about their ideas and impressions of the study's questions. Analysis followed a four- phase process. First, raw data from interview transcriptions were reviewed. Salient parts of each interview were then highlighted for further analysis. In the second phase, strips of conversation from the raw data were coded to allow for reassembly into the essence of shared meaning (Strauss, 1987) and placed into "bins" for organization (Miles and Huberman, 1984). In phase three of analysis, confirming and disconfirming evidence of patterns or themes among groups and individuals was sought. In the final phase of data analysis, findings and conclusions were validated.

Findings

The study's findings are presented in a manner that highlights the distribution hierarchy of the MCF-CD as noted by the Michigan Department of Education. First, a discussion of data obtained from REMC directors and distributors regarding dissemination patters will be presented. This will be followed with a discussion of comments acquired from teachers concerning their familiarity with the CD and its location. It is important to note that because of the three-year time-span between the actual distribution of the CD and this research inquiry, participants often found it difficult to recall precise details of their dissemination plan.

REMC directors

To better comprehend the dissemination patterns of the CD, questions regarding distribution were divided into three different areas: distribution plan, means of distribution, and modification to the distribution plan. Inquiry was also made regarding training aspects. Overall, the distribution methods of the directors were similar to those outlined by the Michigan Department of Education. Below are findings related to these questions.

Distribution plan

In this stage of questioning, interviewees were asked to describe their involvement in the distribution of the MCF/BP-CD with other distributors or individual schools, as well as highlight their distribution plan. All of the REMC directors stated they were either responsible for or had information on their association's dissemination plan. The most noted means of distribution (70%) was in the form of training.

Subsequent training sessions took two forms:

- 1) Structured training specifically for the MCF-CD
- 2) Discussion and exploration at administrative, staff, or technology meetings.

Although training varied in nature and structure, the primary goal of the training sessions was to train the-trainer/distributor in hopes of promulgating the CD to the necessary parties.

Structured training for MCF/BP CD-ROM

Although the objectives of training sessions were similar, depending on director, responses regarding who trained and who attended sessions varied. Fifty percent of the REMC directors or other designated administrators held training sessions

to instruct the trainer/disseminator. Generally, these sessions were held at REMC offices or local ISDs. During training, key players, such as curriculum directors, media specialists, principals and technology coordinators participated in structured sessions for the sole purpose of examining training objectives and content of the MCF/BP-CD. Of these key players, media specialists and technology coordinators were mentioned most frequently in regard to receiving training. According to one REMC director, “Training individuals who are in leadership roles lets us know that the CD will get to the proper parties.”

Because of the varying size of districts in each REMC Association, some directors employed innovative training methods to ensure the CD reached intended parties. For example, to guarantee proper dissemination of the CD, one administrator hired outside trainers, as he stated, “Through our Tech Lit Grant, we were able to hire trainers whose sole purpose was to map out a training and distribution plan. Trainers delivered and trained each principal individually.” Another innovative method was the development of training teams. One director shared this comment about training teams: “Each of our local districts put together training teams from each building for half-day training sessions. It was this team that returned to their buildings and trained the staff.”

According to the Zeller and Wingate (2000), the ultimate goal of the Best Practices projects was to “strengthen and enhance the statewide elementary and secondary school curriculum through the integration of technologies.” Thirty percent of the directors echoed this statement, as they felt the CD should be presented directly to individuals who possessed the skills to comprehend the technical or curricular aspect of the CD. Consequently, since the CD was a form of technology and curriculum, many felt

technology or curriculum coordinators should distribute the CD. One director proposed, “CDs serve a much greater purpose when connected to either technology or curricula. If you want people to use innovations, you have to give something a purpose.”

When asked about the selection of individuals to attend training sessions, a plethora of responses were given. The Primary decision was made by the ISD or REMC directors, but other administrators such as media specialists and principals were also mentioned. A director from the northeastern part of Michigan stated, “As a director, that was my decision. We targeted specific groups, such as curriculum directors, because that is the route we always take for curriculum or professional development.” Another director took a different stance, as he stated, “Everyone was invited. People had to sign up before hand, and we didn’t turn anyone away. This included teachers and principals.” As noted by another director, “We first trained the principals and then let them make the decision regarding who should attend additional training sessions.”

Demonstration and exploration training

CDs were also distributed at administrative, staff or technology meetings. Unlike the structured training sessions, the distribution of the CD was not the sole purpose of these meetings. Participants such as principals, curriculum directors and technology coordinators explored the CD during regularly scheduled meetings. Instead of employing training methods set fourth by the MDE, the CD was simply introduced by the director or other administrator and reviewed/explored by participants. At the conclusion of the meeting, each individual was given five CDs per school building to distribute. As one REMC director from the Upper Peninsula proffered, “Adults in

education should have the knowledge to navigate a CD-ROM. We were there to offer assistance only if questions arose.”

Additional comments regarding training

Thirty-six percent of the interviewees received some form of personal training. Training sessions held at the ISD or REMC offices included other participants such as internal staff or REMC council members. Directors who did not receive structured training stated that their own personal comprehension of the materials allowed them to serve as trainer. One director noted, “My training was more self-taught. Just getting the CD training materials before we had to do the training for other people was enough.” Additionally, directors stated they found the navigation of training materials simple, making formal instruction unnecessary.

Means of distribution

REMC directors utilized two methods of CD distribution: training sessions and district couriers. Given that the major form of distribution was training, CDs were distributed to individuals during training sessions. That is, if individuals attended training, they received the proper number of CDs for their district. Another form of dissemination, the district courier, was employed to deliver CDs to distributors before they attended training sessions. In the event that distributors were unavailable for training, the district courier was also used as a means to deliver their CDs.

Modification of distribution plan

Interviewees were asked about changes made to their distribution plan. Nine of the 20 REMC directors (40%) stated a change in their distribution plan. Consequent

changes included discontinuing training, directing distribution more closely to teachers, and changing the distribution contact person at ISD.

Discontinuing training

Twenty-two percent of directors discontinued training. The simple level of training served as grounds for discontinuation. Comments from directors included, “Training was too basic. Administrators and teachers felt they were above and beyond what was presented.” Other remarks included, “We sent the CD to schools but did not require training. Everyone seemed to know what they were doing,” and “The next year distribution was less formal and training was not required.”

Directing distribution more closely to teachers

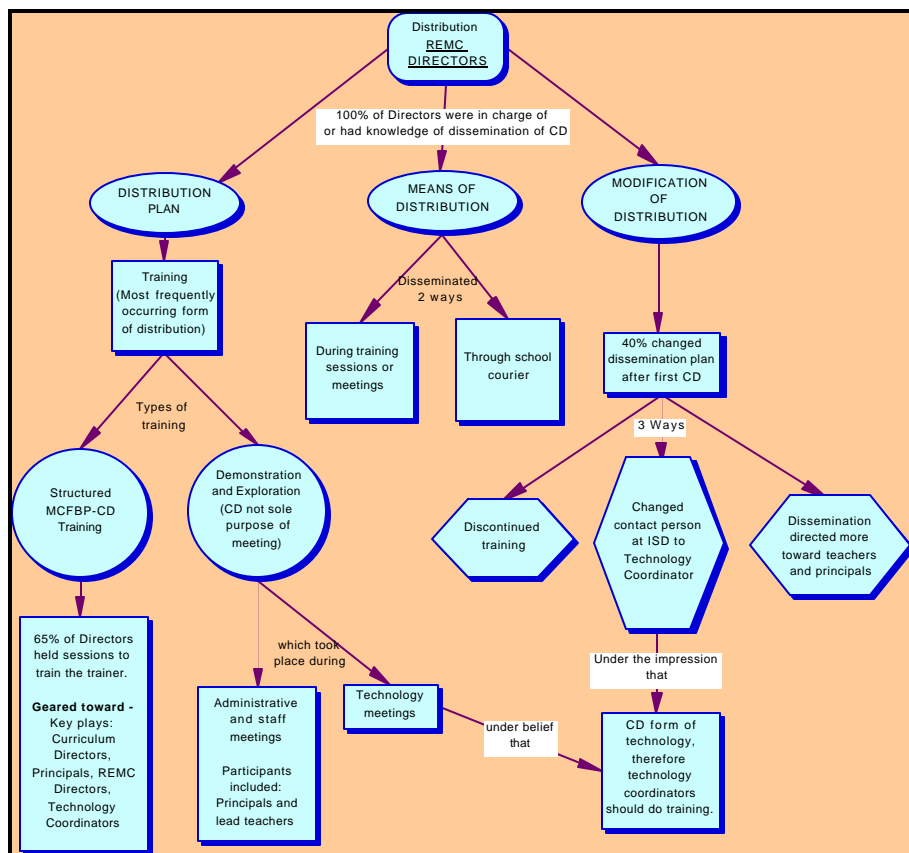
As one director recommended, “The top down approach does not work. Training teachers is the key, because they are the end users of the CD.” On this same modification, an additional director remarked, “After our district trained all of those people, CDs did not get to the proper parties. With the MCF, we want to make sure teachers get them, which did not happen. The next time, I invited teachers to attend training.” Another director had this to say regarding training teachers: “From administrators to teachers does not work. Things get stuck. Administrators have too many other things to worry about. Having teachers sit down and work with the CD has been an incredible success.”

Changing distribution contact person

Four out of 20 interviewees felt the distribution contact person should be changed. For instance, one distributor noted that CDs should be distributed by individuals at the ISD instead of the school building. She stated, “We switched the

distribution from a point person in the building to a point person in the district. We found that with the first CD teachers weren't aware it existed. We felt that the media specialists had taken the first CDs and not distributed them. Too many times, individuals at schools claim ownership. In the end, everyone suffers."

Figure 2 outlines the overall results of the REMC director comments.



Distributors

Distributors were asked about their knowledge of dissemination in three areas: distribution plan, means of distribution, and modifications to distribution plans. Inquiry was also made on aspects of training. Below are findings related to these questions.

Distribution plan

As with REMC directors, distributors were asked to describe their involvement in the distribution of the MCF-CD to other distributors or individual schools, as well as highlight their distribution plan. In every case, distributors were responsible for the dissemination of the CD. In addition, 40% stated dissemination was done in collaboration with another administrator at their ISD or school. These co-distributors included technology coordinators, curriculum directors, and trainers. When questioned about their CD supplier, 70% affirmed they received CDs from ISD or REMC offices. Conversely, the remaining 30% were unaware from what source they received CDs.

Unlike the emphasis placed on distribution through structured training by REMC directors, 75% of the distributors used exploratory training methods to introduce the CD. Of this group, 55% distributed CDs during technology meetings. Here, participants such as technology coordinators and lead technology teachers reviewed/explored contents of the CD during regularly scheduled meetings. Upon review, participants were given CDs to distribute to their district or schools. One distributor remarked, “Since the CD dealt with technology, we gave them out during a technology training session. Individuals came to the training session and explored the contents.” Further comments on this theme included, “CDs were used as a tool to develop our five-year technology plan. Individuals involved in technology worked with the CD and then took the information back to the schools,” as well as, “We invited technology directors because of the CDs involvement in technology and teachers, because they are the end users”.

Two of the nine interviewed distributors (20%) provided copies of the CD to curriculum directors and principals during staff meetings. Of this group only principals were given structured training. The distributor from this district stated, “We first trained

the principals, then training occurred at the school sites for teachers. We wanted to encourage principals to share information at staff meetings and let teachers know that this resource was in their building. It was their job to make sure their staff received them.” Interestingly, the distributor who did not provide training gave this reasoning: “Individuals I gave the CD to, such as curriculum directors, had some form of training experience. Most of them took it upon themselves to review the CD, but there was no training involved.”

Two of the nine interviewees failed to distribute the CD at all. One distributor stated, after a collaborative review of the contents, his ISD refrained from dissemination. He noted, “To our shock, our practices were beyond what were contained on the CD, so three years later, they are still in a box in my office.” The remaining distributor stated that she had not distributed the CDs because of her district’s failure to provide training. She noted, “I should have just given them out, but since the MCF is on the Web, I am not sure if the CDs has any value.”

Additional comments regarding training

When inquiry was made regarding distributors personal training, 44% had received some form of training. Twenty-two percent of these individuals received structured training at their ISD, while the remaining 22% receive training of an exploratory nature, during staff meetings. The remaining distributors who received no training (56%) either examined the training materials personally and found the navigation of the CD too simplistic to require any sort of training measures, or were among the two districts who did not disseminate the CDs.

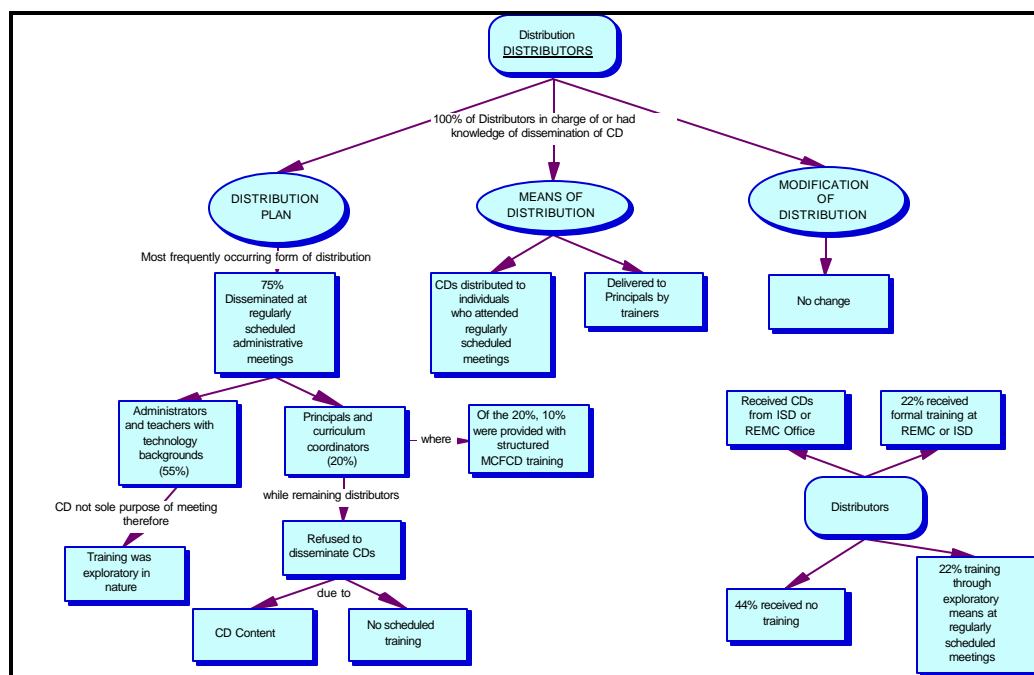
Means of distribution

The major distribution form was through the attendance of meetings. Generally, individuals who attended meetings received the proper number of CDs for their district/schools. Depending on the size of the district, distributors affirmed the amount of CDs they did receive was sufficient. Additionally, one district stated that because of the number of CDs they had received, the CD was placed on their network. As the distributor from this district proffered, “Placing the CD on the network allows every teacher access to the content.” A minority of distributors suggested they only dispersed one or two CDs per school, not the initial five per school stated in the original State Distribution Plan.

Modification of the distribution plan

Interviewees were asked about changes made in their distribution plan after the MCF/BP CD-ROM. In all cases, no deviation from distribution plans was reported.

Figure 3 outlines the overall results of the distributor’s comments.



Teachers

Because teachers were the end point of distribution and ultimately the target audience, their questioning embodied the following topics: Familiarity of location, basis for using the CD, conversations with cohorts regarding CD, and training methods. It is important to note that because of the small number of interviewed teachers, in no way can these findings be generalized across the entire Michigan teacher population. Below is a summary of teacher comments.

Familiarity with location of the CD

With the exception of two interviewees, the majority of teachers were aware of the MCF/BP-CD. Of those two teachers with no knowledge of the CD, both had taught at least three years and were familiar with the Michigan Curriculum Framework paper copy. Additionally, these teachers were unaware of how to obtain a copy of the CD but suggested such a resource would be valuable.

Regarding informed teachers, 40% had a CD copy in their possession. Another 30% stated they could request the CD from their local ISD. Half of these teachers, however, did not know whom to contact at the ISD to request a copy. The remaining 30% of the interviewed teachers who knew of the CD had no idea of where to obtain a copy. As one teacher stated, “If I wanted something like this, I would probably speak to a tech person. I think.” Along this same line, another teacher proffered, “I’ve heard of the CD, but have no idea where I might obtain a copy.”

Reasons the CD might be used by teachers

The primary reason given for use of the CD was for reviewing benchmarks, standards, and outcomes. Responses given regarding the number of times the CD had

been accessed ranged from one to three. As one teacher suggested, “It was helpful to me in ... that one category, but only in that one time instance.” Another teacher noted that she had used the CD only for ideas, “not for lesson plans themselves.”

Conversations with cohorts

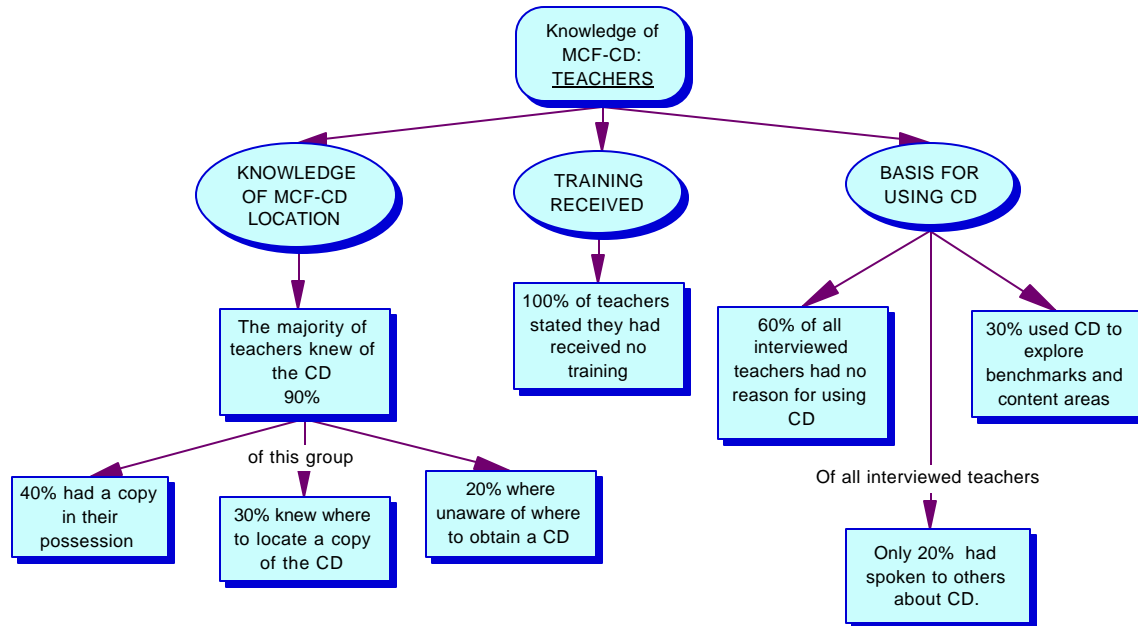
When asked if the CD had been discussed amongst their teaching cohort 60% said “No.” One teacher offered her input as she remarked, “There is really no need to talk about the CD with anyone. We’ve talked a lot about curriculum and the Michigan Curriculum Framework, but not about the use of the CD.” Other reasons given include, time constraints on teachers and not seeing the importance of the CD.

Teachers who had spoken about the CD had done so at meetings. Two of the nine interviewees noted that conversations about the CD surrounded their technology integration plan and school improvement. Surprisingly, when asked this question, one teacher responded by suggesting that she “only talked with another teacher about the CD, because she was being interviewed.”

Training

On the subject of teacher training in the use of the CD, 100% of the interviewees had received no training. One teacher stated the CD had been mentioned in a workshop setting, but only in the context of where it might be obtained. Comments made by teachers regarding training included, “No teachers to my knowledge have been trained,” “No training was held at my school, at least,” and “No, our teachers have not heard of any training. We mainly go by the paper copy.”

Figure 4 outlines the overall results of teacher's comments.



Conclusions and Discussions

By way of conclusion, we present our interpretation of the findings and discuss their implications. Before we present our conclusions, we must caution our readers that the sample of our third population, i.e. the end users or the teachers, is very small. It should by no means be considered a representative sample of all teachers in Michigan.

However, these teachers revealed a consistent pattern that can be viewed as typical and thought-provoking. The qualitative nature of the data gives us an in-depth look into the dissemination of technology-based innovations. Based on the data, we reach the following conclusions:

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- There is a great need for the product in schools. Over 1500 hard copies have been purchased by schools.
- Overall, the original dissemination plan seemed reasonable in that it took advantage of the existing dissemination network in the education system. It also considered training as key to successful dissemination, which is consistent with the literature on professional development and innovation diffusion.
- The dissemination plan seemed to have worked well at the first level: from developer to level-one distributors. As the findings suggest, all the level-one distributors (i.e., REMC directors) had access to the CD and were prepared to provide training and the CD to the second level distributors, that is, district level or building level distributors. The plan worked less successfully with the second-level distributors with 70% held training sessions for distribution. However, the plan worked even less well at the last stage: from trainers/distributors to the end users. As noted, virtually none of the teachers received any training and half of the teachers did not know where to obtain the CD.
- Actual uses of the MCM/BP-CD were very limited. The most frequent usage included only two out of nine teachers using it no more than three times.

There are many possible reasons to account for the fact that a well-designed product and a well-developed dissemination failed to be used by its users. In this case, we believe the following are the primary reasons contributing to the failure of successful dissemination of the MCF/BP-CDs:

- Lack of awareness of the significance and value of the CD. The end users, and some of the distributors, were not fully aware of the value of the CD, because they were not properly trained. In some cases, the training was conceived as only technical, which led to the discontinuation or downplaying of training, because some distributors thought the navigation was very straightforward and simple.
- Lack of awareness of the CD's existence or where to obtain one. Some teachers did not even know such a product existed or among the ones who have heard about the CDs, many did not know how to obtain one. As mentioned before, many schools purchased hardcopies, or perhaps downloaded copies from the Web, instead of using the CDs, which were free and arguably easier to use.
- Incompatibility with local plans/practices. Some believed that the content of the CD (the best practices part) was not as good as what they already had.
- Inefficient dissemination infrastructure. The dissemination followed a conventional process of information flow in the education system, which however did not seem to be effective. Apparently, school administrators, technology directors, specialists, and teachers seem to have different ways to access information about innovations, and they definitely do not operate in a hierarchical fashion. In other words, a direct chain of command from MDE or REMC to teachers does not exist.

Recommendations

In light of these findings and the literature on innovation diffusions, we make the following recommendations:

1. The training should be much more about the content of the product and how it could be used by teachers and schools, instead of on the technical aspects of the product. In other words, instead of focusing on the mechanics and technical details of the product, such as the navigational interface, training should focus on how the product may solve existing problems or meet the existing needs for teachers and schools.
2. Target the intended users directly. Dissemination should directly involve the target audiences, in this case, teachers. We have a techno-centric bias in selecting dissemination approaches of technology-enabled products. We often consider the CDs as primarily “technology” while ignoring their content. This misconception leads to the use of technologists as the main disseminating agents, while neglecting the target audience, which may not be among the technologists. Thus, we recommend that innovative products should first be disseminated to their intended audiences, without the mediation of technologists.
3. The product can also be disseminated through professional development opportunities offered by the State, ISD, or school districts. University programs aimed at providing professional development to teachers are a less commonly used channel. It would be beneficial to provide information on the product to

university instructors of courses that directly focus on the professional development of teachers.

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